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<b>TRANSMITTAL FORM</b> <i>(to be used for all correspondence during pendency of filed application)</i>	Application Number	10/007,734	
	Filing Date	November 9, 2001	
	First Named Inventor	Yaochu Jin	
	Group Art Unit Number	2121	
	Examiner Name	George B. Davis	
Total Number of Pages in This Submission	12*	Attorney Docket Number	23077-06445

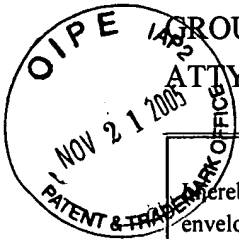
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: Yaochu Jin et al.  
APPLICATION NO.: 10/007,734  
FILING DATE: November 9, 2001  
TITLE: Approximate Fitness Functions  
EXAMINER: George B. Davis  
GROUP ART UNIT: 2121  
ATTY. DKT. NO.: 23077-06445



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**Under 37 CFR §§ 1.56 and 1.97-98**

SIR:

Pursuant to the provisions of 37 CFR §§ 1.56 and 1.97-98, enclosed herewith is modified form PTO/SB/08A listing references for consideration by the Examiner. A concise explanation in accordance with 37 CFR §1.98(a)(3) of the relevant portions of the cited references that are not in the English language are believed to be set forth in the English abstract accompanying reference C50.

The filing of this Information Disclosure Statement shall not be construed as a representation regarding the completeness of the list of references, or that inclusion of a reference in this list is an admission that it is prior art or is pertinent to this application, or that a search has been made, or as an admission that the information listed is, or may be considered to be, material to patentability, or that no other material information exists, and shall not be construed as an admission against interest in any manner.

This Information Disclosure Statement is being filed:

- ☐ within three months of the filing date of the application, or date of entry into the national stage of an international application, or before the mailing date of a first office action on the merits, whichever event last occurred;
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**PATENT**

- ☐ after three months of the filing date of this national application or the date of entry of the national stage in an international application, or after the mailing date of the first official action on the merits, whichever event last occurred, but before the mailing date of the first to occur of either: (1) a final action under 37 CFR §1.113; or (2) an action that otherwise closes prosecution in the application, and:
  - ☐ attached hereto is the fee set forth under 37 CFR §1.17(p) for submission of this Information Disclosure Statement under 37 CFR. § 1.97(c); OR
  - ☐ Applicant certifies pursuant to 37 CFR § 1.97(e) that:
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  - ☐ Applicant certifies pursuant to 37 CFR. § 1.97(e) that:
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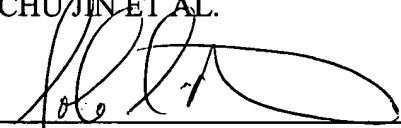
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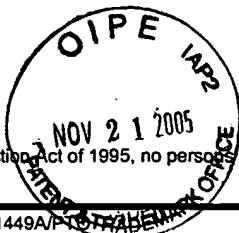
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- ☒ after the payment of the issue fee. Applicant requests that the information contained in this Information Disclosure Statement be placed in the file according to 37 CFR § 1.97(i), although the information may not be considered by the USPTO.
- ☒ Enclosed is a copy of each listed reference that may be material to the examination of this application, and for which there may be a duty to disclose.
- ☐ This application relies, under 35 U.S.C. § 120, on the earlier filing date of prior application No. \_\_\_\_\_, filed on \_\_\_\_\_, and the references cited therein are hereby referenced, but are not required to be provided in this application under 37 CFR § 1.98(d).
- ☐ This application was filed after June 30, 2003. Therefore, pursuant to the waiver of the requirements under 37 CFR 1.98(a)(2)(i), copies of each U.S. Patent and each U.S. Patent Application Publication are not required to be submitted. Copies of any foreign patent documents and non-patent literature cited herein are enclosed.
- ☐ Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not received by any individual designated in 37 CFR § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement. 37 CFR § 1.704(d).
- ☒ Applicant submits that no fee is required for the consideration of this Information Disclosure Statement.

Consideration of the listed references and favorable action are solicited.

Respectfully submitted,  
YAOCHU JIN ET AL.

Dated: 18 Nov 2005

By:   
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Substitute for form 1449A/P-TS

### Complete if Known

Application No.	10/007,734
Filing Date	November 9, 2001
First Named Inventor	Yaochu Jin
Art Unit	2121
Examiner Name	George B. Davis
Attorney Docket Number	23077-06445

Sheet 1 of 8

### U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document No. Number – Kind Code <sup>2</sup> (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-5,724,258	03-03-1998	Roffman

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> – Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T <sup>6</sup>

### OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS

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	C1	BALUJA, S. et al., "Combining Multiple Optimization Runs With Optimal Dependency Trees," June 30, 1997, 12 pages, CMU-CS-97-157, Justsystem Pittsburgh Research Center, Pittsburgh, PA and School Of Computer Science, Carnegie Mellon University, Pittsburgh, PA.	
	C2	BALUJA, S., "Population-Based Incremental Learning: A Method For Integrating Genetic Search Based Function Optimization And Competitive Learning," Population Based Incremental Learning, June 2, 1994, pp. 1-41, CMU-CS-94-163, School Of Computer Science, Carnegie Mellon University, Pittsburgh, PA.	
	C3	BOSMAN, P. et al., "Advancing Continuous IDEAs With Mixture Distributions And Factorization Selection Metrics," 6 pages, Institute Of Information And Computing Sciences, Utrecht University, Utrecht, The Netherlands.	
	C4	BOSMAN, P. et al., "An Algorithmic Framework For Density Estimation Based Evolutionary Algorithms," December 1999, pp. 1-63, Department Of Computer Science, Utrecht University, Utrecht, The Netherlands.	
	C5	BOSMAN, P. et al., "Continuous Iterated Density Estimation Evolutionary Algorithms Within The IDEA Framework," 10 pages, Department Of Computer Science, Utrecht University, Utrecht, The Netherlands.	
	C6	BOSMAN, P. et al., "IDEAs Based On The Normal Kernels Probability Density Function," March 2000, pp. 1-16, Department Of Computer Science, Utrecht University, Utrecht, The Netherlands.	

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				Application No.	10/007,734
				Filing Date	November 9, 2001
				First Named Inventor	Yaochu Jin
				Art Unit	2121
				Examiner Name	George B. Davis
Sheet	2	of	8	Attorney Docket Number	23077-06445

OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS			
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	C7	BOSMAN, P. et al., "Mixed IDEAs," December 2000, pp. 1-71, UU-CS-2000-45, Institute Of Information And Computing Sciences, Utrecht University, Utrecht, The Netherlands.	
	C8	BOSMAN, P. et al., "Negative Log-Likelihood And Statistical Hypothesis Testing As The Basis Of Model Selection In IDEAs," August 2000, pp. 1-17, Department Of Computer Science, Utrecht University, Utrecht, The Netherlands.	
	C9	BRANKE, J. et al., "Faster Convergence By Means Of Fitness Estimation," October 1, 2002, pp. 1-9, Institute AIFB, University of Karlsruhe, Karlsruhe, Germany.	
	C10	COSTA, M. et al., "MOPED: A Multi-Objective Parzen-Based Estimation of Distribution Algorithm for Continuous Problems," Polytechnic of Turin, 12 pages, Turin, Italy.	
	C11	DEB, K. et al., "A Computationally Efficient Evolutionary Algorithm For Real-Parameter Optimization," KanGAL Report Number 2002003, April 11, 2002, pp. 1-21, Kanpur Genetic Algorithms Laboratory, (KanGAL), Indian Institute Of Technology Kanpur, Tsutsui Kanpur, India.	
	C12	DEB, K. et al., "A Fast And Elitist Multi-Objective Genetic Algorithm: NSGA-II," KanGAL Report No. 200001, 20 pages, Kanpur Genetic Algorithms Laboratory (KanGAL), Indian Institute Of Technology Kanpur, Kanpur, India.	
	C13	DEB, K., "A Population-Based Algorithm-Generator For Real-Parameter Optimization," KanGAL Report Number 2003003, 25 pages, Kanpur Genetic Algorithms Laboratory (KanGAL), Indian Institute Of Technology, Kanpur, Kanpur, India.	
	C14	DEB, K. et al., "Self-Adaptation In Real-Parameter Genetic Algorithms With Simulated Binary Crossover," GECCO '99/Genetic Algorithms, 8 pages, Kanpur Genetic Algorithms Laboratory (KanGAL), Department of Mechanical Engineering, Indian Institute Of Technology Kanpur, India and Department Of Computer Science/XI, University of Dortmund, Dortmund, Germany.	
	C15	DEB, K. et al., "Simulated Binary Crossover For Continuous Search Space," November 1994, pp. 1-33, IITK/ME/SMD-94027, Convenor, Technical Reports, Department Of Mechanical Engineering, Indian Institute Of Technology, Kanpur, India.	
	C16	DE BONET, J. et al., "MIMIC: Finding Optima By Estimating Probability Densities," Advances In Neural Information Processing Systems, 1997, 8 pages, MIT Press, Cambridge, MA.	
	C17	EL-BELTAGY, M. A. et al., "Metamodeling Techniques For Evolutionary Optimization Of Computationally Expensive Problems: Promises And Limitations," Genetic Algorithms And Classifier Systems, pp. 196-203.	
	C18	EMMERICH, M. et al., "Metamodel – Assisted Evolution Strategies," PPSN VII, LNCS 2439, 2002, pp. 361-	

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				Filing Date	November 9, 2001
				First Named Inventor	Yaochu Jin
				Art Unit	2121
				Examiner Name	George B. Davis
Sheet	3	of	8	Attorney Docket Number	23077-06445

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		370, Springer Verlag, Berlin, Heidelberg.	
	C19	ESHELMAN, L. et al., "Crossover Operator Biases: Exploiting the Population Distribution," Proceedings of the Seventh International Conference on Genetic Algorithms, 1997, pp. 354-361.	
	C20	ESHELMAN, L. et al., "Real-Coded Genetic Algorithms and Interval-Schemata," Philips Laboratories, pp. 187-202, New York, New York, US.	
	C21	FUKUDA, K., "What is Voronoi Diagram in R <sup>d</sup> ?", [online]. August 26, 2004 [Retrieved on August 18, 2005] Retrieved from the Internet<URL:http://www.ifor.math.ethz.ch/~fukuda/polyfaq/node29.html>	
	C22	"Genetic Algorithms For Optimization Taking Account Of Characteristics Preservation," pp. 1-110.	
	C23	GRAVES, R.W. et al., "Acoustic Wavefield Propagation Using Paraxial Explorators," ACM, 1988, pp. 1157-1175.	
	C24	HARIK, G. et al., "The Compact Genetic Algorithm," IEEE, 1998, pp. 523-528.	
	C25	HARIK, G., "Linkage Learning Via Probabilistic Modeling In The ECGA," IlliGAL Technical Report 99010, January 1999, 19 pages, Illinois Genetic Algorithms Laboratory, Department of General Engineering, Urbana, IL.	
	C26	JAIN, A.K. et al., "Data Clustering: A Review," ACM Computing Surveys, September 1999, pp. 264-323, Vol. 31, No. 3, Michigan State University, Indian Institute Of Science and The Ohio State University.	
	C27	JIMENEZ, D. et al., "Dynamically Weighted Ensemble Neural Networks For Classification," IEEE, 1998, pp. 753-756, The University Of Texas Health Science Center at San Antonio.	
	C28	JIN, Y. et al., "Connectedness, Regularity And The Success Of Local Search In Evolutionary Multi-Objective Optimization," 8 pages, Honda Research Institute Europe, Offenbach/M, Germany.	
	C29	JIN, Y. et al., "On Evolutionary Optimization With Approximate Fitness Functions," 8 pages, Future Technology Research, Honda R&D Europe (D) GmbH, Offenbach/Main, Germany.	
	C30	JIN, Y. et al., "Fitness Approximation In Evolutionary Computation – A Survey," 8 pages, Future Technology Research, Honda R&D Europe (D) GmbH, Offenbach/Main, Germany.	
	C31	JIN, Y. et al., "A Framework For Evolutionary Optimization With Approximate Fitness Functions," IEEE Transactions On Evolutionary Computation, October 2002, pp. 481-494, Vol. 6, No. 5.	
	C32	KHAN, N. et al., "Multi-Objective Bayesian Optimization Algorithm," IlliGAL Report No. 2002009, March 2002, pp. 1-10, Illinois Genetic Algorithms Laboratory, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C33	KIM, H.S. et al., "An Efficient Genetic Algorithm With Less Fitness Evaluation By Clustering," IEEE, 8 pages,	

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		MW Lab, Mindware, Co., Ltd., Seoul, Korea and Department of Computer Science, Yonsei University, Seoul, Korea.	
	C34	KITA, H. et al., "Multi-Parental Extension of the Unimodal Normal Distribution Crossover for Real-Coded Genetic Algorithms," IEEE, 1999, pp. 1581- 1588.	
	C35	KVASNICKA, V. et al., "Hill Climbing with Learning (An Abstraction of Genetic Algorithm)", Slovak Technical University, 6 pages, Bratislava, Slovakia.	
	C36	LARRANAGA, P. et al., "Optimization By Learning And Simulation Of Bayesian And Gaussian Networks," Technical Report EHU-KZAA-IK-4/99, December 31, 1999, pp. 1-70, Intelligent Systems Group, Dept. Of Computer Science And Artificial Intelligence, University Of The Basque Country.	
	C37	LAUMANN, M. et al., "Bayesian Optimization Algorithms For Multi-Objective Optimization," 10 pages, ETH Zurich, Computer Engineering And Networks Laboratory and VUT Brno, Faculty Of Information Technology, Brno.	
	C38	LIU, Y. et al., "Evolutionary Ensembles With Negative Correlation Learning," pp. 1-27, The University Of Aizu, Fukushima Japan, The University Of Birmingham, Birmingham, U.K. and Evolvable Systems Laboratory, Computer Science Division, Ibaraki, Japan.	
	C39	LIU, Y. et al., "Negatively Correlated Neural Networks Can Produce Best Ensembles," Australian Journal Of Intelligent Information Processing Systems, Spring/Summer 1997, pp.176-185, Computational Intelligence Group, School Of Computer Science, University College, Australian Defence Force, The University Of South Wales, Canberra, Australia.	
	C40	LIU, Y. et al., "Simultaneous Training Of Negatively Correlated Neural Networks In An Ensemble," IEEE Transactions On Systems, Man, And Cybernetics – Part B: Cybernetics, December 1999, pp. 716-725, Volume 29, No. 6.	
	C41	LOBO, F. et al., "Extended Compact Genetic Algorithm In C++," ILLIGAL Report 99016, June 1999, pp. 1-4, Illinois Genetic Algorithms Laboratory, Department Of General Engineering, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C42	MUHLENBEIN, H., "The Equation For The Response To Selection And Its Use For Prediction," pp. 1-46, RWCP Theoretical Foundation GMD Laboratory, Sankt Augustin.	
	C43	MUHLENBEIN, H. et al., "Evolutionary Algorithms: From Recombination To Search Distributions," pp. 1-39, RWCP Theoretical Foundation GMD Laboratory, Sankt Augustin.	
	C44	MUHLENBEIN, H. et al., "Evolutionary Synthesis Of Bayesian Networks For Optimization," MIT Press	

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		Math6x9, September 1999, pp. 1-27.	
	C45	MUHLNBEIN, H. et al., "The Factorized Distribution Algorithm For Additively Decomposed Functions," Proceedings Of The 1999 Congress On Evolutionary Computation, 1999, IEEE Press, pp. 752-759, Real World Computing Partnership, Theoretical Foundation GMD Laboratory, Sankt Augustin, Germany.	
	C46	MUHLNBEIN, H. et al., "FDA – A Scalable Evolutionary Algorithm For The Optimization Of Additively Decomposed Functions," Evolutionary Computation, 1999, pp. 45-68, Vol. 7, No. 1, Theoretical Foundation GMD Lab, Real World Computing Partnership, GMD FZ Informationstechnik, St. Augustin.	
	C47	MUHLNBEIN, H. et al., "From Recombination Of Genes To The Estimation Of Distributions I. Binary Parameters," 10 pages, GMD – Forschungszentrum Informationstechnik, Sankt Augustin, Germany.	
	C48	OKABE, T. et al., "Evolutionary Multi-Objective Optimisation With A Hybrid Representation," 8 pages, Honda Research Institute Europe, Offenbach/M, Germany.	
	C49	ONO, I. et al., "A Real-Coded Genetic Algorithm for Function Optimization Using Unimodal Normal Distribution Crossover," Proceedings of the Seventh International Conference on Genetic Algorithms, pp. 246-253, 1997.	
	C50	ONO, I. et al., "A Real-Coded Genetic Algorithm For Function Optimization Using The Unimodal Normal Distribution Crossover," Technical Papers, 1999, pp. 1-11, University Of Tokushima, Tokushima, Japan, National Defence Academy, Yokosuka, Japan and Tokyo Institute Of Technology, Yokohama, Japan.	
	C51	ONO, I. et al., "A Robust Real-Coded Genetic Algorithm Using Unimodal Normal Distribution Crossover Augmented By Uniform Crossover: Effects For Self-Adaptation Of Crossover Probabilities," 8 pages, University of Tokushimsa, Tokushima, Japan, Tokyo Institute Of Technology, Yokohama, Japan and Tokyo Institute Of Technology, Yokohama, Japan.	
	C52	OPTIZ, D. et al., "Generating Accurate And Diverse Members Of A Neural-Network Ensemble," Advances In Neural Information Processing Systems 8, 7 pages, MIT Press, Cambridge, MA, Computer Science Department, University Of Minnesota, Duluth, MN and Computer Sciences Department, University Of Wisconsin, Madison, WI.	
	C53	PAUL, T. et al, "Reinforcement Learning Estimation Of Distribution Algorithm," 12 pages, Graduate School Of Frontier Sciences, The University Of Tokyo, Tokyo, Japan.	
	C54	PELIKAN, M. et al., "BOA: The Bayesian Optimization Algorithm," 8 pages, Illinois Genetic Algorithms Laboratory, Department Of General Engineering, University Of Illinois At Urbana-Champaign.	
	C55	PELIKAN, M. et al., "BOA: The Bayesian Optimization Algorithm," IlliGAL Report No. 99003, January 1999,	

Examiner Signature		Date Considered	
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				Filing Date	November 9, 2001
				First Named Inventor	Yaochu Jin
				Art Unit	2121
				Examiner Name	George B. Davis
Sheet	6	of	8	Attorney Docket Number	23077-06445

**OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS**

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		pp. 1-12, Illinois Genetic Algorithms Laboratory, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C56	PELIKAN, M. et al., "Linkage Problem, Distribution Estimation, And Bayesian Networks," IlliGAL Report No. 98013, November 1998, pp. 1-24, Illinois Genetic Algorithms Laboratory, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C57	PELIKAN, M. et al., "Marginal Distributions In Evolutionary Algorithms," pp. 1-6, Slovak Technical University, Bratislava, Slovakia and GMD Forschungszentrum Informationstechnik, Sankt Augustin, Germany.	
	C58	PELIKAN, M. et al., "A Survey Of Optimization By Building And Using Probabilistic Models," IlliGAL Report No. 99018, September 1999, pp. 1-11, Illinois Genetic Algorithms Laboratory, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C59	PERRONE, M. et al., "When Networks Disagree: Ensemble Methods For Hybrid Neural Networks," October 27, 1992, 15 pages, Physics Department, Neuroscience Department, Institute For Brain And Neural Systems, Brown University, Providence, R.I., To Appear In "Neural Networks For Speech And Image Processing," R.J. Mammone, ed., Chapman-Hall, 1993.	
	C60	RATLE, A., "Accelerating The Convergence Of Evolutionary Algorithms By Fitness Landscape Approximation," pp. 87-96, Departement De Genie Mecanique, Universite de Sherbrooke, Quebec, Canada.	
	C61	ROSEN, B., "Ensemble Learning Using Decorrelated Neural Networks," To Appear In Connections Science, pp. 1-14, Computer Science Division, University Of Texas At San Antonio, San Antonio, TX.	
	C62	ROUSSEEUW, P., "Silhouettes: A Graphical Aid To The Interpretation And Validation Of Cluster Analysis," Journal Of Computational And Applied Mathematics, 1987, pp. 53-65, Volume 20, University Of Fribourg, Fribourg, Switzerland.	
	C63	RUDLOF, S. et al., "Stochastic Hill Climbing With Learning By Vectors Of Normal Distributions," August 5, 1996, pp. 1-11, Fraunhofer-Institut For Production Systems And Design Technology (IPK), Berlin.	
	C64	SEBAG, M. et al., "Extending Population-Based Incremental Learning To Continuous Search Spaces," 10 pages, Ecole Polytechnique, Palaiseau Cedex and Universite d'Orsay, Orsay Cedex.	
	C65	TAKAHASHI, M. et al., "A Crossover Operator Using Independent Component Analysis for Real-Coded Genetic Algorithms," Tokyo Institute of Technology and National Institution for Academic Degrees, 7 pages, Japan.	
	C66	THIERENS, D. et al., "Multi-Objective Mixture-Based Iterated Density Estimation Evolutionary Algorithms," 8 pages, Institute Of Information And Computing Sciences, Utrecht University, Utrecht, The Netherlands.	
	C67	TSUTSUI, S. et al., "Evolutionary Algorithm Using Marginal Histogram Models In Continuous Domain,"	

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		IlligAL Report No. 2001019, March 2001, pp. 1-16, Illinois Genetic Algorithms Laboratory, University Of Illinois At Urbana-Champaign, Urbana, Illinois.	
	C68	TSUTSUI, S. et al., "Multi-Parent Recombination With Simplex Crossover In Real Coded Genetic Algorithms," 8 pages, Department Of Management And Information Science, Hannan University, Osaka, Japan and Graduate School Of Interdisciplinary Science And Engineering, Tokyo Institute Of Technology, Yokohama, Japan.	
	C69	TSUTSUI, S. et al., "Probabilistic Model-Building Genetic Algorithms Using Marginal Histograms In Continuous Domain," KES' 01, N. Baba et al. (Eds.), IOS Press, 2001, pp. 112-121, Department Of Management And Information, Hannan University, Osaka, Japan and Illinois Genetic Algorithms Laboratory, Department Of General Engineering, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C70	TSUTSUI, S., "Sampling Bias And Search Space Boundary Extension In Real Coded Genetic Algorithms," 8 pages, Department Of Management And Information Science, Hannan University, Osaka, Japan.	
	C71	TSUTSUI, S. et al., "Search Space Boundary Extension Method In Real-Coded Genetic Algorithms," Information Sciences, May 2001, pp. 229-247, Vol. 133, No. 3-4, Department Of Management And Information Science, Hannan University, Osaka, Japan and Illinois Genetic Algorithms Laboratory, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C72	TSUTSUI, S. et al., "Simplex Crossover And Linkage Identifications: Single-Stage Evolution VS. Multi-Stage Evolution," IEEE, 2002, 6 pages, Department Of Management And Information, Hannan University, Osaka, Japan and Illinois Genetic Algorithms Laboratory, Department Of General Engineering, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C73	TSUTSUI, S. et al., "Simplex Crossover And Linkage Learning In Real-Coded GAs," Genetic Algorithms: Poster Paper, p. 785, Department Of Management And Information Science, Hannan University, Osaka, Japan and Illinois Genetic Algorithms Laboratory, University Of Illinois At Urbana-Champaign, Urbana, IL.	
	C74	UEDA, T. et al., "Efficient Numerical Optimization Technique Based On Real-Coded Genetic Algorithm," Genome Informatics, 2001, pp. 451-453, Vol. 12, Graduate School Of Bioresource And Bioenvironmental Sciences, Kyushu University, Fukuoka, Japan and Department Of Biochemical Engineering and Science, Kyushu Institute Of Technology, Fukuoka, Japan.	
	C75	ULMER, H. et al., "Model-Assisted Steady-State Evolution Strategies," 12 pages, Center For Bioinformatics Tübingen (ZBIT), University of Tübingen, Tübingen, Germany.	
	C76	YAO, X. et al., "Making Use Of Population Information In Evolutionary Artificial Neural Networks," IEEE Transactions On Systems, Man, And Cybernetics, June 1998, pp. 417-425, Vol. 28, No. 3.	

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	C77	ZHANG, B., "A Bayesian Framework for Evolutionary Computation," IEEE, 1999, pp. 722-728.	
	C78	ZHANG, B. et al., "Building Optimal Committees Of Genetic Programs," pp. 1-10, Artificial Intelligence Lab (SCAI) School Of Computer Science And Engineering, Seoul National University, Korea.	
	C79	HARIK, G. et al., "The Compact Genetic Algorithm," IlliGAL Report No. 97006, August 1997, pp. 1-21, Illinois Genetic Algorithms Laboratory, Department Of General Engineering, University Of Illinois At Urbana-Champaign, Urbana, IL.	

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